JAN 27 1937

STATISTICAL BULLETIN

METROPOLITAN LIFE INSURANCE COMPANY

VOLUME 17 NOVEMBER · 1936 NUMBER 11

Eleven, the Safest Age

THE proverbial happiness of childhood rests on a very real and solid foundation. The second decade of life is the period of maximum health, and relatively the freest from fatal accidents. The 11th year, or thereabouts, is the optimum point, at which the high hazards of infancy and earliest childhood are past, and the new and gradually mounting risks of adolescence, maturity, and old age have not yet begun to exert their influence. So low, in fact, is the mortality from disease at this stage of life that fatal accidents come to occupy first rank among the causes of death; and yet, even they are at a minimum.

Both below and above the age period of lowest mortality, other causes slip into first place, and the item of accidents is removed to more subordinate rank as age advances. In the youngest age group, 1 to 4 years, influenza and pneumonia (considered jointly) take the first rank, communicable diseases second, and accidents third. From ages 5 to 19, accidents take first rank. Then tuberculosis begins to contribute prominently, being the first cause of death from ages 20 to 34, accidents occupying second place. From this point on a number of causes enter more and more into the picture. So from ages 35 to 44, with tuberculosis still the first cause of death, there enter heart disease—cancer, influenza and pneumonia, ahead of accidents, which now takes fifth place. From here on the whole array of degenerative diseases assume their definite importance, six causes in all outranking accidents, in the age group 45 to 54, namely, heart disease, cancer, influenza and pneumonia, chronic nephritis, tuberculosis, and cerebral hemorrhage, in the order named. At ages 55 to 64 tuberculosis drops out from the first seven causes of death, and accidents from this time forward continue in seventh rank, the place of tuberculosis having been taken by diabetes.

The ages 5 to 19, where, according to the list just cited, accidents rank first as a cause of death, are thus relatively exempt from all the major causes of death, and such risks as beset even this favored period of life bring its mortality, at the minimum point, about age 11, to only just a little over one per 1,000 among our white population.

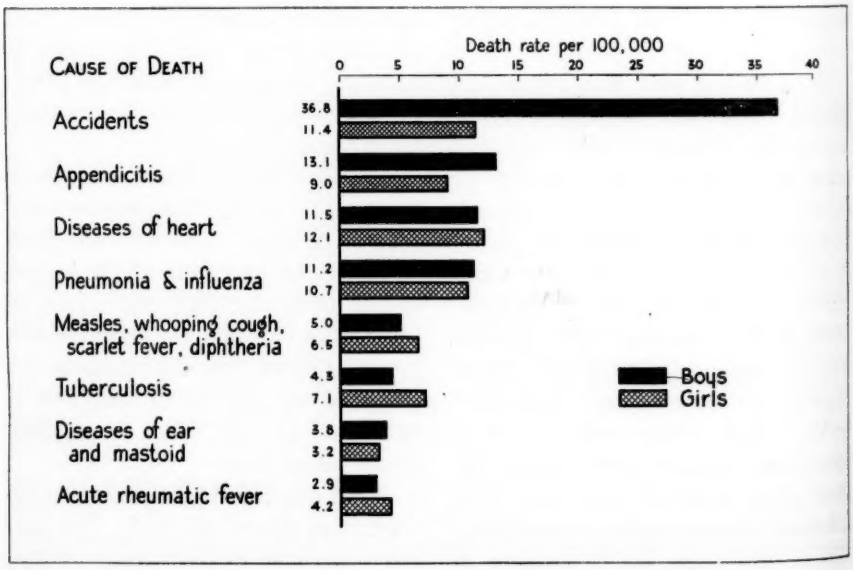
What are the special risks of this fortunate period of life? For answer, we turn to the records of the

white Industrial policyholders of the Metropolitan Life Insurance Company, for the last five years 1931 to 1935, on which also the facts cited above are based. These special risks of the period of minimum mortality differ somewhat for the two sexes, as shown in the chart on this page. Among boys 11 years old, accidents account for about 28 percent of all deaths. Just about one third of this accident toll is exacted by the automobile. Other prominent accidental causes of death are drowning, which is a rather close second to deaths from automobile accidents. The actual figures show that automobile accidents contribute 9.7 percent of all deaths at this age period, drowning 7.9 percent, accidental falls 2.5 percent, injuries from firearms 1.9 percent, fatalities from accidents with vehicles other than automobiles 1.2 percent, railroad accidents 1.1 percent, accidental burns 0.9 percent. Other special forms of accidents in no case contribute as much as 1 percent of the total deaths at this age.

Next in order as a cause of death, after accidents, at this age of a boy's life, comes appendicitis, which accounts for just 10 percent of all deaths. Heart disease, though we think of it mainly as characteristic of later ages of life, actually ranks third as a cause of death at this time of life, causing nearly 9 percent of all deaths; about the same proportion of deaths is also caused by influenza and pneumonia combined. Communicable diseases of childhood

LEADING CAUSES OF DEATH AT AGE ELEVEN, THE AGE OF LOWEST MORTALITY

METROPOLITAN LIFE INSURANCE COMPANY, INDUSTRIAL DEPARTMENT
WHITE PERSONS, 1931 TO 1935



contribute not quite 4 percent, and tuberculosis a little more than 3 percent. No other cause of death in normal years rises much, if any, above 3 percent of the total, which, as we saw, is a little more than one death per year in every 1,000 exposed at this optimum period of life.

The distribution among girls is appreciably different. In this case diseases of the heart rank first, amounting to about 12 percent of the total deaths; accidents take only about 11 percent of the total, ranking second. A close third, with about the same figure, is influenza and pneumonia combined. Appendicitis comes next with about 9 percent, and tuberculosis is fifth with about 7 percent of all deaths.

Death rates alone do not tell the whole story. The picture is materially different when we consider sickness rates, because the diseases most typical of this period of life have a relatively low case fatality, in contrast to the ultimately fatal turn so frequent in diseases of later life. Nevertheless, even disabling illnesses reach their minimum among children in their teens.

While it is true that childhood diseases, as a group, are often thought of as relatively harmless, since the recovery rate is very high, nevertheless they must be taken seriously on account of their relation to possible later developments. Heart disease in later life is often a delayed consequence of infection, such as measles, scarlet fever, and rheumatic fever suffered in childhood. Thus, if we wish to use the figures previously cited as a guide to direct us in our efforts at further prolonging human life, though our first attention might well be directed toward greater protection of young children from accidents, at home and on the streets, we shall be wise to give our next thought to the further control of the communicable diseases.

Syphilis Mortality Declines Among White Persons

A VIGOROUS drive against syphilis has recently been launched under the leadership of the Surgeon-General of the United States Public Health Service, Dr. THOMAS PARRAN, JR. This campaign has directed anew the attention of public health officials and organizations to the need for stamping out a disease which, although preventable, has plagued mankind for centuries. To stimulate this movement and to provide information which may aid in the formulation of a working program, the Metropolitan Life Insurance Company presents some of the facts concerning the mortality from syphilis among its millions of Industrial policyholders over the past quarter of a century.

The trend of the death rate among white persons is clearly encouraging. Between the periods 1911 to 1915 and 1931 to 1935 the death rate from syphilis, locomotor ataxia, and general paralysis of the insane

combined* declined about 45 percent among white policyholders in each sex. Moreover, the improvement in mortality has benefited the entire range of ages. In view of the fact that the reporting of syphilis and its allied diseases as causes of death has improved over the 25-year period, the downward course of the mortality among white persons has probably been even more rapid than the figures in the table on page 5 indicate.

In contrast with the favorable experience for white persons is the definitely rising death rate among Negroes, among whom this disease has always taken its largest toll. Between the quinquennia 1911 to 1915 and 1931 to 1935 the mortality increased 37.7 percent among colored males and 13.9 percent among colored females. As a result of the opposite trends of the death rates for white and for colored persons, the disparity for these two groups has widened. In the earlier five-year period, the death rate for colored males was less than twice that for white males, but in recent years the ratio has become more than 4½ to 1. Among females the proportion of colored to white mortality was about 3 to 1 in 1911 to 1915, and is now more than 6 to 1. From these figures it is evident that the movement for the control of syphilis must concentrate more attention on the Negro population.

Why this difference in trend in the two races, not alone in the industrial population but also in the general population of the United States? The decline in mortality among white persons may be attributed to a number of factors: increased use of protective methods against the acquisition of the disease, earlier and more adequate treatment, the medical examination of food handlers and personal service employees, and the generally higher standards of living. The reasons for the increased mortality among the colored are not apparent. One factor may be the northward migration of Negroes since the World War. But we must not forget that this very movement has carried with it more adequate facilities for medical care and, therefore, for reporting.

Syphilis is a major public health problem. In 1934, the most recent year for which data for the entire country are available, approximately 17,700 deaths in the United States were attributed to syphilis, locomotor ataxia, and general paralysis of the insane. This figure does not, however, begin to reveal the toll that these diseases exact. In the first place, syphilis as a cause of death is greatly understated on death certificates. It may well be that if all deaths due to syphilis were reported as such, the annual total in the United States would be in the neighborhood of 100,000. Moreover, it has been estimated that about 7,000,000 persons in this country have syphilis at any given time; that one out of every 10 adults will be in-

*In order to obtain comparable data over the 25-year period, it is necessary to consider these diseases together. Virtually all deaths due to locomotor ataxia and to general paralysis of the insane are luetic in origin.

fected by syphilis at some time during his or her life; and that the annual number of new cases receiving medical care each year is about a half million. This is certainly a shocking toll of death and disability.

This great wastage of human life could be much reduced, if knowledge of prophylaxis and treatment now generally available were more widely used. The experiences in England, Russia, and especially the Scandinavian countries, bear witness to the efficacy of a determined drive against the venereal diseases. In Stockholm, for example, in 1919 there were about 44 new cases of syphilis per 10,000 population. In that year a broad anti-venereal program was put into effect, and at present the rate is about two new cases per 10,000 population.

The American people must be aroused to the seriousness of the venereal disease problem and be urged to take decisive action towards its solution. One important step is to find cases as early as possible in the course of the disease. Syphilis exists in many unsuspected cases. Wassermann surveys in supposedly healthy groups of wage-earners have shown that from 1 to 16 percent of these persons were infected with the disease. When cases are discovered, treatment should be begun immediately and continued until the infection has been cured. To accomplish this end, far more adequate facilities for treatment are needed than are now available. Many stillbirths and cases of congenital syphilis can be prevented through the routine use of blood tests for all pregnant women and the treatment of those infected.

Syphilis, Locomotor Ataxia, and General Paralysis of the Insane.
Five-Year Averages of Annual Death Rates per 100,000*
By Color and Sex. Ages 1 to 74 Years.
Metropolitan Life Insurance Company, Industrial Department, 1911 to 1935

Years	Total Persons	White		Colored	
		Males	Females	Males	Females
1911 to 1935.....	13.7	17.9	6.0	47.4	24.3
1931 to 1935....	10.4	11.9	4.0	54.1	25.4
1926 to 1930....	12.1	15.2	5.0	49.0	24.8
1921 to 1925....	14.3	18.9	6.3	47.2	24.8
1916 to 1920....	16.3	22.3	7.4	47.2	24.3
1911 to 1915....	15.4	21.2	7.3	39.3	22.3
Percent change 1931–1935 since 1911–1915.....	—32.5	—43.9	—45.2	+37.7	+13.9

*Standardized for age.

Furthermore, the arm of the law should strike out more firmly against quacks and charlatans who by their worthless "cures" destroy the patients' chance of recovery. We must refuse to continue witnessing the ravages of a disease which is both preventable and curable.

The Extraordinary Rise in Coronary Disease*

HARDLY a week goes by which is not marked by the death from coronary disease of some prominent person, often at the very height of his activity and usefulness. The rapidity with which coronary disease has forged ahead to take its place as one of the leading causes of death is a striking feature of the mortality situation today.

Although the diseases of the coronary arteries have been the subject of study for many years, they were first separately classified in mortality statistics in 1930. In that year the death rate from coronary diseases among the millions of Industrial policyholders of the Metropolitan Life Insurance Company was only 4.7 per 100,000. In the short space of five years it has risen without interruption until the rate, in 1935, was 22.6, or nearly five times the 1930 figure. The rate continues to rise. During the first 10 months of the current year it was 24.9, as compared with 22.0 for the corresponding period of 1935 and 18.5 for the first 10 months of 1934. Diseases of the coronary arteries today rank eighth in the list of causes of death.

A more informing picture of the situation, however, may be gathered from the trend of the above figures combined with those for angina pectoris. This condition, with which the public is more familiar, is, in the vast majority of cases, merely symptomatic of disease in the coronary arteries. The death rate from angina pectoris has tended to fall since 1930, as greater recognition has come to be given to the coronary disease which is its cause. But the death rate from coronary diseases and angina pectoris combined has risen from 14.1 in 1930 to 31.8 in 1935, a rise of more than 100 percent in five years. Death rates, adjusted to allow for changes in the age, sex, and color composition of the insured population, show a slightly smaller increase, namely, from 16.7 in 1930 to 32.4 in 1935.

No matter what mortality data are examined, a similar situation is found to prevail. Among policyholders insured in the Ordinary Department of the Metropolitan Life Insurance Company, consisting, for the most part, of men who are, on the average, on a higher economic level than those in the Industrial Department, the death rate from coronary diseases alone has increased from 8.5 per 100,000 in 1930 to 28.8 in 1935 (adjusted rates, ages 10 to

*This article is, in part, a summary of the chapter "Statistics of Diseases of the Coronary Arteries," by Louis I. Dublin, in *Diseases of the Coronary Arteries and Cardiac Pain*, edited by Robert L. Levy, The Macmillan Co., New York, 1936.

74). If angina pectoris is included, the increase is from 24.5 in 1930 to 43.0 in 1935.

Likewise, the death rate from diseases of the coronary arteries for the country as a whole (excluding Texas) has risen from 7.9 per 100,000 in 1930 to 27.5 in 1934, the latest year for which figures are available, or an increase of nearly 2½ times in the short space of four years. The combined figures for diseases of the coronary arteries and angina pectoris show an increase from 24.1 per 100,000 in 1930 to 43.3 in 1934.

Of very great interest is the only long-term series of statistics on coronary diseases. It relates to Brookline, Mass., whose health officer, Dr. FRANCIS B. DENNY, has studied and reclassified the records of all heart deaths in his community since 1900. The data for that city, a well-known suburb of Boston, are of particular value because the per-capita wealth of its inhabitants is among the highest in the country and, for that reason, the general level of medical service available to its population is excellent, and also because of its nearness to one of the country's great medical centers. Dr. DENNY found that, during 1900–1904, no deaths were reported from coronary diseases. Between 1905 and 1909, the death rate was 3.9 per 100,000. In the next five years the rate rose slightly. After 1915 it went up with considerable rapidity, so that in the five-year period 1930 to 1934 a rate of 94.6 per 100,000 was recorded and in 1935 a rate of 156.6. The deaths recorded from diseases of the coronary arteries in 1935 were slightly less than half of all the deaths from heart disease in that year. The death rate from angina pectoris rose from 16.7 in 1900–1904 to a peak of 36.4 during 1925–1929 and has since fallen to 21.8 in 1935. The deaths from coronary diseases and angina pectoris combined in Brookline, in 1935, outnumbered those from all other forms of heart disease.

There is wide variation in the mortality from coronary diseases in the United States. The latest figures for coronary diseases and angina pectoris combined (1934) show that the maximum rate of 83.3 per 100,000 was recorded in Maine, followed by Massachusetts with a rate of 75.4, New Hampshire 73.0, Oregon 72.7, and Vermont 72.0. At the lower end of the scale are Arkansas with the minimum rate of 14.6, Mississippi 15.8, and New Mexico 18.3. For the country as a whole the combined rate was 42.8. In general, the rates are well above average in New England, in New York, in a few of the Middle Western States, and on the Pacific Coast. They are well below the average, with a few exceptions, throughout the South.

The great frequency with which men, especially white men, are attacked by coronary diseases is a notable feature of the situation. The data in 1935 for Industrial policyholders show a standardized death rate from coronary diseases and angina pectoris of 48.7 per 100,000 for white men, as compared with a rate of only 19.3 for white women. Among colored persons, the rate for

men in 1935 was only 24.0 and for women 18.3. This wide difference between the sexes in the incidence of diseases of the coronary arteries is confirmed by many clinical series.

Physicians who have given particular attention to the problem of heart disease have considered carefully the question whether the enormous increase recorded in the mortality from coronary diseases is valid. The consensus of opinion is that a great part of it is fictitious because not only has the death rate from angina pectoris begun to fall, but also that from organic diseases of the heart since 1930, when coronary diseases, as such, were first given recognition in the official list of causes of death. To what extent, if any, there has been a real rise cannot be determined. Most students of the situation believe, however, that there has been a true increase in the incidence of these conditions.

In the popular mind, as well as among most physicians, attacks of coronary disease are associated with sudden and dramatic death. This has tended to arouse a feeling of hopelessness and despair regarding these conditions. Careful study of the histories of persons who have had a seizure shows, however, that this feeling is to a great extent unwarranted. Although a relatively large number of persons succumb in the first recognized attack or shortly thereafter, a good proportion of those having disease of the coronary arteries survive this attack and live for many years. For example, in a series of 259 cases studied by Conner and Holt, in which the subsequent history of the patients was known, 117 were living at the time of their report and 142 had died. Of 117 cases surviving the first attack, for whom the facts were known, 88 or 75 percent were alive and in good health at the end of one year, 65 or 56 percent at the end of two years, 25 or 21 percent at the end of five years.

In another series of 370 patients, reported by Willius of the Mayo Clinic, 45.7 percent were living and 54.3 percent had died. Of 169 living and 190 fatal cardiac cases, 77 percent lived one year or more; 67 percent, two years or more; and 28 percent, five years or more. Of the living cases, regardless of the time of their first attack, 43 percent were in good health, 23 percent were well but restricted their activities, and 34 percent were ill or disabled, chiefly because of recurrent attacks.

In brief, then, the quantitative status of the coronary disease problem is confusing. The true prevalence of these conditions is not known, but it is certain that a further increase in their incidence and mortality will be reported. The chief contributing factor probably will be the growing skill in recognizing them, when they exist. There is a powerful stimulus in this direction from the intensive research in various phases of coronary disease and the rapid diffusion of the new knowledge which is fast accumulating. The actual number of coronary cases will increase also because the proportion of older persons, who are

chiefly affected, is steadily rising. Apart from the changes due to these two sets of forces, which are of such magnitude that they obscure the rest of the picture, it is difficult to gauge the real trend of the disease. Experts are not in complete agreement whether any part of the present rapid increase in the reported incidence of coronary diseases may be explained by factors other than those outlined. We know, however, that these diseases are largely due to degenerative changes, of the same nature as those which take place, with advancing age, in other arteries and in the body as a whole. To that extent, diseases of the coronary arteries are not curable but, to a degree, postponable. We know also that many patients improve with treatment and that a significant proportion of them live comfortably for years after the onset of their disease. This proportion will increase as medical knowledge of these conditions and of therapeutic measures, pharmacological and other, improves. The research in all phases of these conditions promises appreciable success in that direction.

Health Record for October 1936

An unprecedentedly low October mortality rate reduced the year-to-date death rate of the 17,000,000 Industrial policyholders of the Metropolitan Life Insurance Company from 8.6 per 1,000, at the end of September, to 8.5 at the close of October. Health conditions in this large cross-section of the American and Canadian populations are substantially the same as for this period in 1935, when the cumulative death rate was 8.4 per 1,000. It should be borne in mind that 1935 was the record year for low mortality among these insured wage-earners and their dependents.

The comparison with 1935, in fact, shows that the insured population is making a considerably better showing than the general population of 86 large cities of the United States. The cumulative death rate in these cities for 45 weeks marks a rise since last year of more than 7 percent, whereas among the insured the increase is only about 1 percent.

Among the Company's 1,225,000 Industrial policyholders in Canada, the year-to-date death rate is identical with that for the January-October period of last year, namely, 6.4 per 1,000.

When the facts for the individual causes of death are examined, many favorable items become apparent. The typhoid fever mortality rate remains negligible and may easily register a new record low at the end of the year. Each of the four principal communicable diseases of childhood (measles, scarlet fever, whooping cough, and diphtheria) records a substantial drop from last year's figure. The decline is so large, in fact, that unless important outbreaks occur during the few remaining weeks of the year, 1936 will be

featured by new minimal death rates for all four of these diseases.

It is already assured that the long series of continuous declines for tuberculosis will extend through 1936; the cancer death rate is lower by 3.5 percent than at this time last year, and that for diseases incidental to pregnancy and childbirth shows a 10 percent decrease.

More fatal accidents have occurred during the first 10 months of the current year than during the like period of 1935. Information is not at hand, at this writing, to determine whether the increase is due to a rise in industrial accidents or in accidents in the home, or in both. Inasmuch as many more people have been employed in industry this year than in 1935, a rise in industrial accidents may well have occurred. This, however, is certain, that the increase in total accidents is not due to a rise in automobile fatalities, for the cumulative death rate from such fatalities among Metropolitan Industrial policyholders, at the end of 10 months, is only 19.1 per 100,000, as compared with 19.5 at the end of October 1935. Similar evidence is found in a recent report of the Bureau of the Census, which shows that in 137 American cities only 7,840 automobile fatalities were reported for the first 45 weeks in 1936, as compared with 8,259 for the similar 1935 period. This, then, would indicate a definite improvement. Somewhat divergent from this is the evidence contained in a statement of the NATIONAL SAFETY COUNCIL, which reports 25,850 motor vehicle fatalities throughout the entire country for the January-September period of 1936, as compared with 25,830 during the like part of 1935. Such a very slight increase in the number of deaths during 1936 would, however, be quite insufficient to raise the automobile death rate. Since the figures given by the NATIONAL SAFETY COUNCIL differ from those cited from the Census Bureau report, in that they include rural accidents as well as those in cities, we may conclude that if any actual increase in automobile fatalities in the United States as a whole should be recorded at the end of the year, it will be due to a rise in the deaths in the rural districts.

The causes to register noteworthy increases in mortality this year are heart disease, diseases of the coronary arteries, pneumonia, and accidents (all forms).

The death rate in the general population of the large cities of the United States during the month of October was 11.1 per 1,000 estimated population. This may be compared with 9.9 for the month of September 1936 and 10.8 for October 1935. Comparison with the facts for September shows that there was increased prevalence during October of diphtheria, influenza, measles, scarlet fever, and smallpox, together with fewer cases of poliomyelitis and typhoid fever. As compared with October 1935, none of the reportable diseases showed an increase, but there were fewer cases of diphtheria, influenza, measles, poliomyelitis, scarlet fever, and typhoid fever.

The following table shows the mortality among Industrial policyholders for October 1936, September 1936, and October 1935, together with the cumulative rates for the first 10 months of each year.

METROPOLITAN LIFE INSURANCE COMPANY

Death Rates per 100,000 for Principal Causes. Weekly Premium-Paying Business in Industrial Department. All Ages (Annual Basis).*

MONTHS OF OCTOBER 1936, SEPTEMBER 1936, AND OCTOBER 1935.

CAUSES OF DEATH	ANNUAL RATE PER 100,000 LIVES EXPOSED*				
	October 1936	September 1936	October 1935	Cumulative January-October 1936	Cumulative January-October 1935
TOTAL—ALL CAUSES	743.2	715.9	748.3	847.5	840.0
Typhoid fever	1.4	1.7	1.7	1.0	1.1
Measles	—	.3	.1	1.0	2.8
Scarlet fever	1.0	.4	1.4	2.2	2.8
Whooping cough	1.9	1.7	2.3	1.6	2.8
Diphtheria	1.7	1.2	2.6	1.7	1.9
Influenza	5.2	2.9	5.0	15.0	15.1
Tuberculosis (all forms)	52.7	48.7	46.6	54.6	56.4
Tuberculosis of respiratory system	48.0	43.5	41.9	48.5	50.3
Syphilis, locomotor ataxia, and general paralysis of the insane	9.8	9.7	10.1	11.7	11.1
Cancer (all forms)	89.9	90.8	95.4	91.5	94.8
Diabetes mellitus	20.0	21.5	21.1	24.4	24.1
Cerebral hemorrhage; apoplexy	53.8	51.3	56.5	61.8	60.7
Diseases of the heart†	137.8	129.8	131.9	160.6	156.7
Diseases of the coronary arteries	26.4	20.0	22.7	24.9	22.0
Angina pectoris	7.2	7.4	8.5	8.5	9.3
Pneumonia (all forms)	37.8	29.3	40.8	70.7	67.1
Diarrhea and enteritis	12.6	13.0	9.0	8.7	8.4
Appendicitis	11.8	12.1	10.5	11.5	11.7
Chronic nephritis (Bright's disease)	51.0	47.0	53.1	59.1	59.7
Puerperal state—total	7.1	7.1	7.7	7.8	8.7
Suicides	7.5	7.3	8.9	8.6	9.4
Homicides	4.8	4.8	5.8	4.8	5.9
Accidents—total	55.0	62.2	53.2	57.9	54.5
Automobile accidents	22.5	23.9	22.2	19.1	19.5
All other diseases and conditions	147.0	146.0	153.5	158.1	153.0

*The rates for 1936 are subject to slight correction, since they are based on provisional estimates of lives exposed to risk.

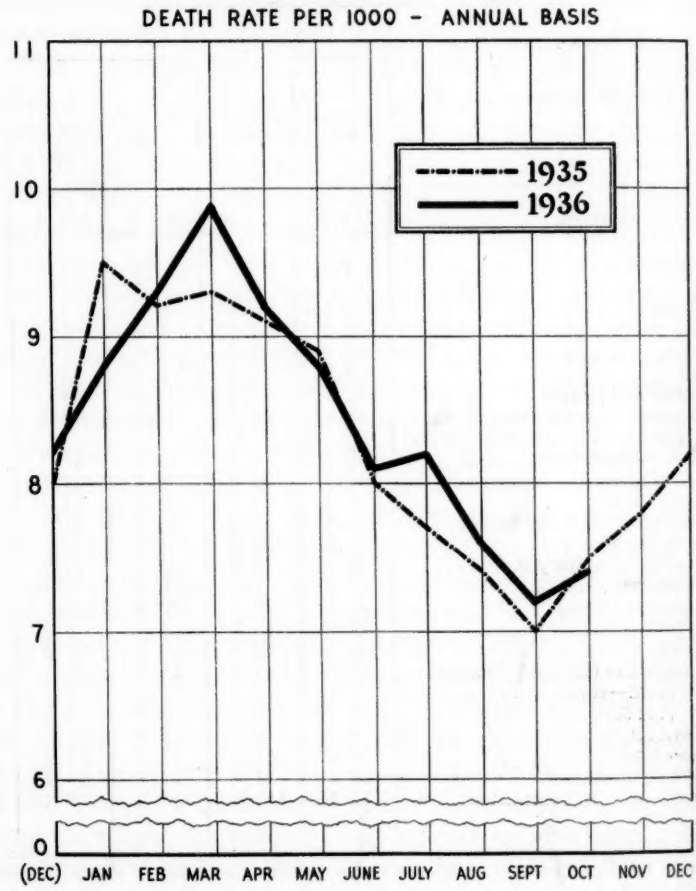
†Excludes pericarditis, acute endocarditis, and acute myocarditis.

Correspondence on the subjects discussed in these BULLETINS may be addressed to: The Editor,

STATISTICAL BULLETIN,
Metropolitan Life Insurance Company,
1 Madison Avenue, New York, N. Y.

DEATH RATES FROM ALL CAUSES

METROPOLITAN LIFE INSURANCE CO. - INDUSTRIAL DEP'T.
WEEKLY PREMIUM-PAYING BUSINESS - TOTAL PERSONS



Rates are provisional for 1936

METROPOLITAN LIFE INSURANCE COMPANY PRESS
NEW YORK, U.S.A.
78566